Designation: E1954 – 05 (Reapproved 2017)

Standard Practice for Conduct of Research in Psychophysiological Detection of Deception (Polygraph)[1]

This standard is issued under the fixed designation E1954; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice establishes essential and recommended elements in the design, conduct, and reporting of research on psychophysiological detection of deception (polygraph) (PDD). Analog and field research are addressed separately.

1.2 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E2035 Terminology Relating to Forensic Psychophysiology

3. Terminology

3.1 *Definitions*—For full explanations of terminology relating to PDD, refer to Terminology E2035.

4. Summary of Practice

4.1 *Laboratory Research:*

4.1.1 Unless subjects must be individually trained or conditioned to achieve some criterion, subject manipulation procedures shall require minimal human interaction. Those portions requiring human interaction shall be standardized to the extent possible.

4.1.2 All procedures shall be described and reported in sufficient detail that others can replicate them. This shall include logistical factors that may introduce systematic error, such as when subject handling allows them to reveal their programming to one another, or arrival times cue testing examiners regarding programming. All research-related materials shall be retained by the researcher for at least five years from date of publication. Reasonable accommodation shall be made to other researchers for access to research documentation and data. Documentation of procedures shall include, but not be limited to, copies of subject instructions, test questions, testing technique, question sequence, description of circumstances and facilities, raw data, and any tape recordings presented.

4.1.3 So far as possible, the only difference between programmed deceptive and programmed nondeceptive subjects should be their participation in the act to which deception occurs during the PDD testing.

4.1.4 Non-exploratory studies shall test a sufficient number of subjects to obtain a statistical power of 0.80 or higher using a 0.05 significance level. Studies that are exploratory in nature—that do not obtain this power level—shall be clearly identified as exploratory studies.

4.1.5 To the extent possible, when conducting validity and reliability studies, participants performing the testing and evaluating the physiological data shall be unaware as to both the programming of the subjects and the base rates of deception. The degree of knowledge of the participants shall be detailed in the report.

4.1.6 All instrumentation shall be fully reported, including any modification of standard equipment. When using field instruments, researchers shall report the manufacturer, model, types of recording channels, whether the channels are mechanically or electronically driven, and whether the instrumentation is computerized.

4.1.7 Statements of generalization shall be limited to that which the data, procedures, and statistical methodology can support.

4.1.8 A human subject research review shall be performed by a recognized independent entity for all studies involving the participation of subjects.

4.2 *Field Research:*

4.2.1 The process for selecting cases shall be thoroughly reported, including at least the source, method, exclusionary criteria, and subject population. With respect to subjects, the report shall clearly articulate the proportions of the sample that are suspects, witnesses, and victims.

[1] This practice is under the jurisdiction of ASTM Committee E52 on Forensic Psychophysiology and is the direct responsibility of Subcommittee E52.01 on Research.

Current edition approved Oct. 1, 2017. Published October 2017. Originally approved in 1998. Last previous edition approved in 2011 as E1954 – 05 (2011). DOI: 10.1520/E1954-05R17.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.